

## **Data Manipulation Confidence Test - V2.0-SFQ-06**

### **Test Objectives:**

The objective of this Science Data Delivery confidence test is to verify capabilities provided by the ECS for users to manipulate EOS data and select subsets, subsamples and summary products. These capabilities are to be verified by nine test cases:

- a. Initial Data Manipulation
- b. Parametric Subsetting
- c. Temporal Subsetting
- d. Spatial Subsetting
- e. Spectral Subsetting
- f. Subsampling
- g. Summary Products
- h. Data Formatting and Transformation
- i. IMS Toolkit

### **Requirements to be Verified:**

Mission Critical Requirements:

None

Mission Essential Requirements:

DADS-0590#B	DADS-0740#B	DADS-2200#B	DADS-2470#B	IMS-0320#B
IMS-0420#B	IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B
IMS-0705#B	IMS-0720#B	IMS-0770#B	IMS-0920#B	IMS-1490#B
IMS-1500#B	IMS-1510#B	IMS-1520#B	IMS-1530#B	IMS-1540#B
IMS-1550#B	IMS-1570#B	IMS-1590#B		

Mission Fulfillment Requirements:

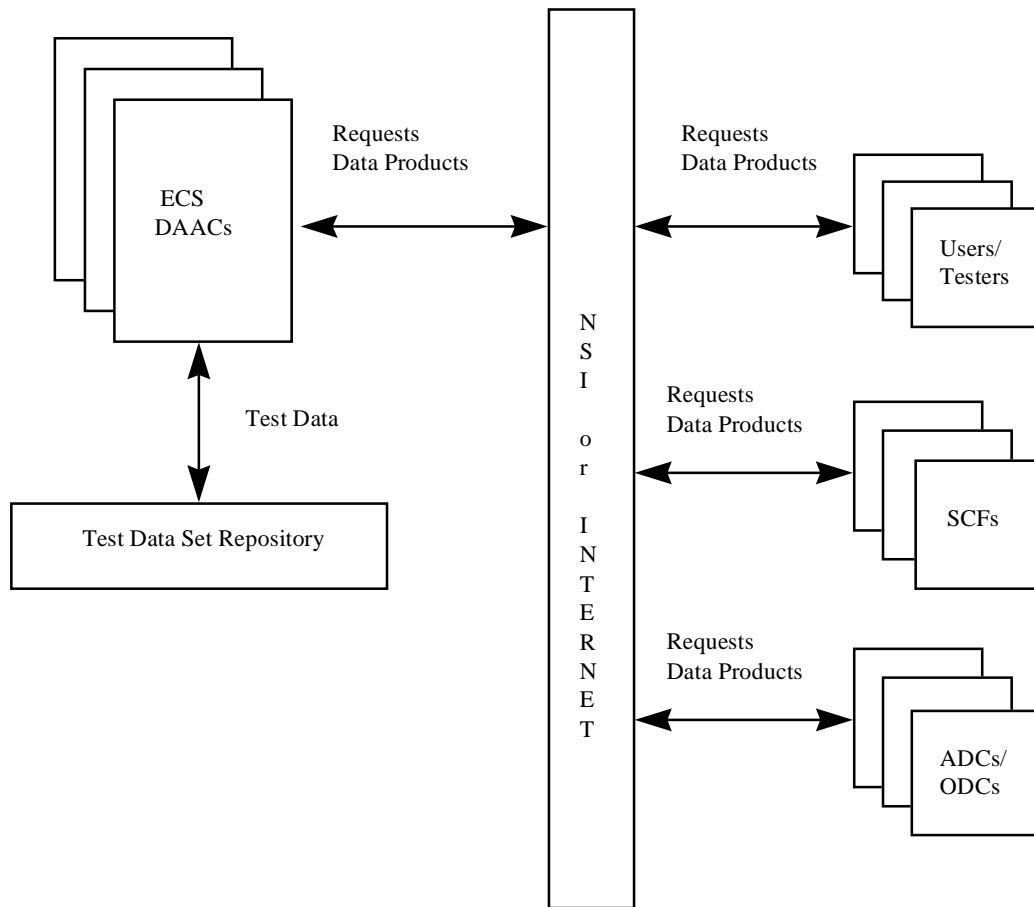
DADS-0930#B	DADS-1475#B	IMS-0580#B	IMS-0730#B
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### **Participants and Support Requirements:**

Participating Organizations:

ECS DAAC support (GSFC, LaRC, EDC, MSFC, JPL, NSIDC, Alaska, ORNL)  
ETS support (Hughes, etc.)  
SCF support (LIS, JPL, MODIS, CERES, MISR, MOPITT, SAGE III, etc.)  
ADC/ODC support (IRIS, U. Wisc., NOAA, etc.)  
ICC/IST support (LANDSAT-7, AM-1, SAGE III, ASTER, IPs, etc.)  
EBNet personnel support

**Test Configuration:**



**Figure 6-1. V2.0-SFQ-06 Confidence Test Configuration**

**Communications:**

Voice: CCL or direct phone line to system personnel

Data Links: EBNNet, WAN Routers and associated hardware

IP Addresses: TBD

**Software:**

Release B Client Software (for use on science users workstation)

Desktop PC, WWW browser, FTP software

**Hardware:**

UNIX workstation(s)

486 (or better) PC

Tools:

DRTT - Discrepancy Report and Tracking Tool to help track and manage defects and discrepancies that are encountered during EGS test activities.

RTM - Requirements and Traceability Management tool to help manage requirements descriptions and coverage.

TMDB - Test Management Data Base tool to manage test case descriptions, procedures, requirements and results.

ESST - Earth Science Search Tool to select and order data products via UNIX workstations.

EOSView - HDF tool to browse images selected via UNIS workstations using ESST.

JEST - Java Earth Science Tool to select and order data products via PCs and the WWW.

HTML/Web Tool - User interface

**Test Case Summary:**

Test Case ID	Mission (Instrument)	Test Case Name
V2.0-SFQ-06.001	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	Initial Data Manipulation
V2.0-SFQ-06.002	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	Parametric Subsetting
V2.0-SFQ-06.003	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	Temporal Subsetting
V2.0-SFQ-06.004	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	Spatial Subsetting
V2.0-SFQ-06.005	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	Spectral Subsetting
V2.0-SFQ-06.006	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	Subsampling
V2.0-SFQ-06.007	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	Summary Products
V2.0-SFQ-06.008	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	Data Formatting and Transformation
V2.0-SFQ-06.009	AM-1 (ASTER, CERES, MISR, MODIS, MOPITT) LANDSAT-7 (ETM+) METEOR (SAGE-III)	IMS Toolkit

**Test Data:**

Overall, the test data sets should include each level of data (L0, L1A, etc.) available for each mission and instrument combination plus each representative samples of the data types available at each level of data.

<b>Mission/Instrument</b>	<b>Characteristics</b>	<b>Source</b>
AM-1/ASTER	L0, L1A, L1B, L2 thru L4; Browse	ECD/ETS/SCTGEN
AM-1/CERES	L0, L1A, L1B, L2 thru L4; Spatial	LaRC/ETS/SCTGEN
AM-1/MISR	L0, L1A, L1B, L2 thru L4; Browse Spatial/Temporal	LaRC/ETS/SCTGEN
AM-1/MODIS	L0, L1A, L1B, L2 thru L4;Browse/ Temporal	LaRC/ETS/SCTGEN
AM-1/MOPITT	L0, L1A, L1B, L2 thru L4; Spatial/Temporal	LaRC/ETS/SCTGEN
Landsat-7/ETM+	Level OR, Level 1G , 12 hrs.	EDC/ETS/SCTGEN
Landsat-7/ETM+	Level OR, Level 1G, 7 Spectral bands	EDC/ETS/SCTGEN
METEOR/ SAGE III	L0, L1A, L1B, L2 thru L4; Browse Spatial/Temporal	LaRC/ETS/SCTGEN
GeoSat	Temporal	ETS/SCTGEN
Landsat-5/ETM	Temporal	EDC/ETS/SCTGEN
NIMBUS-7/AMR	Temporal	ETS/SCTGEN
NOAA-10/AMSU	Temporal	LaRC/ETS/SCTGEN

**References:**

none

**Test Case Descriptions:****V2.0-SFQ-06.001 Initial Data Manipulation**

The objective of this test case is to verify that metadata, browse data and on-line guide data are provided for users to search for and order subsetting, subsampled, and summary data products. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.001:

IMS-0320#B    IMS-0420#B    IMS-0690#B    DADS2220#B

**Test Procedures:**

Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.001	UNIX Workstation @ SI&T Site	Log on to the IMS via a UNIX workstation which has had the IMS Client Subsystem S/W installed.  <b>TO BE UPDATED</b>	The Earth Science Search Tool (ESST) allows the user to submit search requests to the IMS, while EOSView allows the user to browse selected images.	The Client provides a standardized X/Motif GUI and access to ECS data and services.
1.002	PC @ SI&T Site	Log on to the IMS via a PC using Web/HTML tools.  <b>TO BE UPDATED</b>		
1.002	PC @ SI&T Site	Log on to the IMS via a PC using Web/Java Earth Science Tool (JEST)  <b>TO BE UPDATED</b>		JEST allows the user to construct and save search results based on temporal and spatial attributes.

Test Execution:

Step	Station	Action	Expected Results	Comments
2.001		For the mission and instrument being investigated, determine that Standard Product related <b>metadata</b> are provided to search for and order static subsetted, subsampled, and summary data products. Standard Product related metadata should contain, at a minimum: identifiers, algorithms, written descriptions, equations, authors, and references associated with static browse products and subsetted, subsampled, and summary data products.	This procedure should verify that the Standard Product related <b>metadata</b> contains, at a minimum: identifiers, algorithms, written descriptions, equations, authors, and references associated with static browse products and subsetted, subsampled, and summary data products.	<p><b>IMS-0320#B:</b> Standard Product related <b>metadata</b> shall contain, at a minimum: ... (f.) Identifiers, algorithms, written descriptions, equations, authors, and references associated with static browse products and subsetted, subsampled, and summary data products. ...</p> <p>S-DSS-04390: Standard Product related <b>Metadata</b> at the Data Server shall include <b>Metadata</b> associated with static subsetted, subsampled, and summary products.</p> <p><b>DADS2200#B:</b> Each DADS shall maintain a list of data which requires some form of data manipulation such as subsetting.</p> <p>S-DSS-00240: The SDSRV CI shall determine which Data Requests require post-retrieval processing.</p>

2.002		For the mission and instrument being investigated, determine that <b>browse data</b> are provided to search for and order static subsetted, subsampled, and summary data products.	This procedure should verify that browse data are provided to search for and order static subsetted, subsampled, and summary data products.	<p><b>IMS-0690#B:</b></p> <p>The IMS shall provide the capability to visualize pre-order products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-10290: The WKBCH CI shall provide users the capability to <b>browse data</b> in ECS supported visualization formats in a window during the data selection and acquisition process.</p> <p>S-CLS-10330: The WKBCH CI shall provide users the capability of displaying 8-bit raster images.</p> <p>S-CLS-10340: The WKBCH CI shall provide users the capability of displaying 24-bit raster images.</p> <p>S-CLS-10360: The WKBCH CI shall provide users the capability to display <b>browse</b> information in table format.</p> <p>S-CLS-10370: The WKBCH CI shall provide users the capability to display <b>browse</b> information in text format.</p> <p>S-CLS-10380: The WKBCH CI shall provide users the capability to produce an animation loop.</p> <p>S-CLS-10470: The WKBCH CI shall provide users the capability to display <b>browse</b> information in vector graphic format.</p> <p>S-CLS-13580: The WKBCH CI shall provide users the capability to graphically represent data availability for products(s) vs. time.</p> <p>S-CLS-13590: The WKBCH CI shall provide users the capability to graphically view the temporal extent of Data Granules.</p> <p>S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.</p>
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2.003		For the mission and instrument being investigated, determine that the <b>on-line guide data</b> are provided to search for and order subsetting, subsampling, and transformation options for the selected data set.	This test step should verify that on-line on-line guide data are provided to search for and order subsetting, subsampling, and transformation options for the selected data set.	<p><b>IMS-0420#B:</b></p> <p>The IMS <b>on-line guide</b> (documentation /reference material) shall provide or, where appropriate, contain references to such information as: ... , (j.) Subsetting, subsampling, and transformation options available for the given data set ....</p> <p>S-DSS-10055: The DDSRV CI shall provide, to qualified users, access to all documents and data types held in the server's collection.</p> <p>S-DSS-10180: The DDSRV CI shall provide the capability to receive data describing subsetting, subsampling, inventory search, and transformation options available for a given data set.</p>
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Test Termination:

Step	Station	Action	Expected Results	Comments
3.001	PC @ SI&T site	Log off the IMS user interface.		
3.002	UNIX Workstation @ SI&T Site	Log off the 3IMS user interface.		



## V2.0-SFQ-06.002 Parametric Subsetting

This test case verifies that the user is able to request and receive parametric subsets using the capabilities provided by the IMS user interface. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.002:

IMS-0575#B    IMS-0680#B    IMS-0700#B    IMS-0705#B    IMS-0720#B  
IMS-0730#B    IMS-0740#B    IMS-0770#B    DADS0930#B    DADS1475#B  
DADS2470#B

### Test Procedures:

Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.001	PC @ SI&T site	Log on to the IMS user interface.	A list of available services are displayed	

Test Execution:

Step	Station	Action	Expected Results	Comments
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2.001		For the mission and instrument being investigated, search for and order <b>parametric subsets</b> which have been processed at the PGS during the <b>routine production processing</b> and archived at the DADS, whenever associated inventory information is displayed..	It should be verified that the <b>parametric subsets</b> are successfully ordered.	<p><b>IMS-0700#B:</b> The IMS shall provide the capability for users to request <b>subsetting</b>, subsampled, and summary data products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request <b>subsetting</b>, subsampled, and summary products.</p> <p><b>IMS-0770#B:</b> The IMS shall allow users to formulate a data order based on any combination of the inventory core <b>metadata attributes and geophysical parameters</b> at a minimum.</p> <p>S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core <b>metadata</b> attributes.</p> <p>S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific <b>metadata</b> attributes.</p> <p><b>IMS-0680#B:</b> (same CIs as IMS-0700#B) The IMS shall provide data order capabilities integrated with <b>metadata</b> search capabilities.</p> <p><b>IMS-0575#B:</b> The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS2470#B:</b> Each DADS shall transfer Standard Products and <b>subsetting</b>, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetting, subsampled, and summary products.</p>
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2.002		For the mission and instrument being investigated, request <b>Landsat-7 subsets based on specified parameters.</b>	It should be verified that the <b>Landsat 7 parametric subsets</b> are successfully ordered.	<p><b>IMS-0705#B:</b></p> <p>The IMS shall provide the capability to request a <b>subset</b> (i.e. scene) <b>of a Landsat 7 subinterval</b> identified by: (a.) WRS (b.) Geographic Location (x, y, z) spatial with rectangular boundaries (c.) Spectral Band, (d.) Time.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request <b>subsetting</b>, subsampled, and summary products.</p> <p><b>DADS1475#B</b></p> <p>Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. <b>Subsetting</b></li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p>S-DSS-02904: The SDSRV CI shall provide the capability to <b>subset</b>, subsample, or average data within a granule based on <b>WRS</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005</p> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and <b>subsetting</b>, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static <b>subsetting</b>, subsampled, and summary products.</p>
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2.003		For the mission and instrument being investigated, search for and order <b>parametric subsets</b> that have been <b>processed ad hoc</b> within a granule.	It should be verified that the <b>parametric subsets</b> are successfully	<p><b>IMS-0720#B:</b></p> <p>The IMS shall provide the capability to request data products which are <b>processed ad hoc</b> in response to user requests for <b>subsetting</b>, subsampling, or averaging within a granule based on defined criteria to include: (a.) Geographical location, (x, y, z, spatial with rectangular boundaries) (b) Spectral band, (c) Time, (d) WRS.</p> <p>S-CLS-11245: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing of subsetted</b>, subsampled, and summary products based on WRS.</p> <p><b>DADS0740#B</b> (contains the CIs from IMS-0720#B)</p> <p>Each DADS shall provide the capability to subset, subsample, or average data within a granule based on defined criteria to include:</p> <ol style="list-style-type: none"> <li>Geographic location (x, y, z) (spatial with rectangular boundaries)</li> <li>Spectral band</li> <li>Time</li> <li>WRS</li> </ol> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and <b>subsetted</b>, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with <b>static subsetted</b>, subsampled, and summary products.</p>
2.004		Request and obtain estimates of how long it will take before <b>parametric subsets</b> are available.	The time estimates for availability of the <b>parametric subsets</b> should be obtained.	<p><b>IMS-0730#B:</b></p> <p>The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before <b>subsetted</b>, subsampled, or summary products are ready for visualization.</p> <p><b>DADS0930#B:</b></p> <p>Each DADS shall provide the IMS an estimate of the staging delay before <b>subsetted</b>, subsampled, or summary data sets are available.</p>

Test Termination:

Step	Station	Action	Expected Results	Comments
3.001	PC @ SI&T site	Log off the IMS user interface		

### V2.0-SFQ-06.003 Temporal Subsetting

This test verifies that the user is able to request and receive temporal subsets via the IMS. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.003:

IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B	IMS-0705#B
IMS-0720#B	IMS-0720#B	IMS-0740#B	IMS-0770#B	DADS0590#B
DADS1475#B	DADS2470			

#### Test Procedures:

##### Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log on to the IMS user interface.	A list of available services are displayed	

##### Test Execution:

Step	Station	Action	Expected Results	Comments
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2.001		For the mission and instrument being investigated, search for and order <b>temporal subsets</b> which have been processed at the PGS during the <b>routine production processing</b> and archived at the DADS, whenever associated inventory information is displayed.	<p>The temporal subsets should be successfully obtained.</p> <p><b>IMS-0700#B:</b> The IMS shall provide the capability for users to request subsetted, subsampled, and summary data products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.</p> <p><b>IMS-0770#B:</b> The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.</p> <p>S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.</p> <p>S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.</p> <p><b>IMS-0680#B:</b> (same CIs as IMS-0700#B) The IMS shall provide data order capabilities integrated with metadata search capabilities.</p> <p><b>IMS-0690#B</b> The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-13580: The WKBCH CI shall provide users the capability to graphically represent data availability for products(s) vs. time.</p> <p>S-CLS-13590: The WKBCH CI shall provide users the capability to graphically view the temporal extent of Data Granules.</p> <p><b>IMS-0575#B:</b> The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p>
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				<p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Time for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetting, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetting, subsampled, and summary products.</p>
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2.002		Request Landsat 7 temporal subsets.	The Landsat 7 temporal subsets should be successfully ordered.	<p><b>IMS-0705#B:</b></p> <p>The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval identified by: (a.) WRS (b.) Geographic Location (x, y, z) spatial with rectangular boundaries (c.) Spectral Band, (d.) Time.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.</p> <p><b>IMS-0690#B</b></p> <p>The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-13580: The WKBCH CI shall provide users the capability to graphically represent data availability for products(s) vs. time.</p> <p>S-CLS-13590: The WKBCH CI shall provide users the capability to graphically view the temporal extent of Data Granules</p>
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				<p><b>IMS-0575#B:</b> The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b> Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02904: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on WRS for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs) Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p><b>DADS2470#B:</b> Each DADS shall transfer Standard Products and subsetting, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetting, subsampled, and summary products.</p>
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2.003		For the mission and instrument being investigated, search for and order <b>temporal subsets</b> that have been processed ad hoc within a granule.	<p>The temporal subsets should be successfully ordered.</p> <p><b>IMS-0720#B:</b> The IMS shall provide the capability to request data products which are <b>processed ad hoc</b> in response to user requests for <b>subsetting</b>, subsampling, or averaging within a granule based on defined criteria to include: (a.) Geographical location, (x, y, z, spatial with rectangular boundaries) (b) Spectral band, (c) <b>Time</b>, (d) WRS.</p> <p>S-CLS-11240: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of <b>subsampled</b>, subsampled, and summary products <b>based on time</b>.</p> <p><b>DADS0740#B</b> (includes IMS-0720#B CIs) Each DADS shall provide the capability to <b>subset</b>, subsample, or average data within a granule based on defined criteria to include: a. Geographic location (x, y, z) (spatial with rectangular boundaries) b. Spectral band c. <b>Time</b> d. WRS</p> <p><b>IMS-0690#B</b> The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-13580: The WKBCH CI shall provide users the capability to graphically represent data availability for products(s) vs. time.</p> <p>S-CLS-13590: The WKBCH CI shall provide users the capability to graphically view the temporal extent of Data Granules</p> <p><b>IMS-0575#B:</b> The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p>
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				<p><b>DADS0590#B</b> Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Time for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs) Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul>
				<p><b>DADS2470#B:</b> Each DADS shall transfer Standard Products and subsetting, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetting, subsampled, and summary products.</p>
2.004		For the mission and instrument being investigated, request an estimate of how long it will take before the temporal subset ordered will be available.	The time estimates should be received.	<p><b>IMS-0730#B:</b> The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before subsetting, subsampled, or summary products are ready for visualization.</p> <p><b>DADS0930#B:</b> Each DADS shall provide the IMS an estimate of the staging delay before subsetting, subsampled, or summary data sets are available.</p>

Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log off the IMS user interface.		

## V2.0-SFQ-06.004 Spatial Subsetting

This test verifies that the user is able to request and receive spatial subsets via the IMS. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.004:

IMS-0575#B	IMS-0580#B	IMS-0680#B	IMS-0690#B	IMS-0700#
IMS-0770#B	DADS0590#B	DADS01475#B	DADS2470#B	

### Test Procedures:

Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log on to the IMS user interface.	A list of available services are displayed	

Test Execution:

Step	Station	Action	Expected Results	Comments
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2.001		For the mission and instrument being investigated, search for and order spatial subsets which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.	The spatial subsets should be successfully obtained.	<p><b>IMS-0700#B:</b> The IMS shall provide the capability for users to request subsetted, subsampled, and summary data products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.</p> <p><b>IMS-0770#B:</b> The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.</p> <p>S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.</p> <p>S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.</p> <p><b>IMS-0680#B:</b> (same CIs as IMS-0700#B) The IMS shall provide data order capabilities integrated with metadata search capabilities.</p> <p><b>IMS-0690#B</b> The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-10470: The WKBCH CI shall provide users the capability to display browse information in vector graphic format.</p> <p>S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.</p> <p><b>IMS-0575#B:</b> The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p>
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				<p><b>IMS-0580#B</b></p> <p>The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.</p> <p>S-CLS-10060: The WKBCH CI shall support a minimum bounding rectangle criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10070: The WKBCH CI shall support point-and-radius criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10080: The WKBCH CI shall support polygonal coordinate criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10090: The WKBCH CI shall support query of geographic Metadata by geographic name by text input.</p> <p>S-CLS-10300: The WKBCH CI shall provide visual overlays to aid in the selection of spatial data and to enhance the display of geographic metadata.</p> <p>S-CLS-10310: The WKBCH CI shall provide users the capability of positioning the cursor by entering an image X,Y coordinate.</p> <p>S-CLS-10320: The WKBCH CI shall provide users the option to display Latitude/Longitude pairs as symbols, displayed in their proper geolocation on all visualizations produced by the WKBCH CI.</p> <p>S-CLS-10350: The WKBCH CI shall provide users the option to display a series of Latitude/Longitude pairs (i.e., a vector) as lines, displayed in their proper geolocation on top of all visualizations produced by the WKBCH CI.</p> <p>S-CLS-10460: The WKBCH CI shall provide users Lat/Long lists for the production of built-in vector overlays as part of the application.</p>
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				<p>S-CLS-13570: The WKBCH CI shall provide the user the capability to indicate a spatial search criterion by drawing a polygon on a displayed map overlay.</p> <p>S-CLS-13700: Overlays provided for display to users shall be continuous over the entire display area, regardless of any gaps in the science data, for data following HDF-EOS geolocation conventions.</p> <p>S-CLS-13710: The WKBCH CI shall provide users the capability to display on a coverage map the geographic coverage of Data Granules.</p> <p>S-CLS-13720: Users shall be able to select Data Granules displayed on a coverage map for delivery.</p> <p>S-CLS-13970: The WKBCH CI shall provide users the capability to display the Workbench selection map in either a flat equatorial projection, or north or south polar projections.</p> <p>S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.</p> <p>S-CLS-15890: The WKBCH CI map displays shall provide the following types of geographic data sets for background reference: land/oceans, major lakes, major rivers, mountain ranges, volcanoes, major highways and railroads, urban and built-up areas, and political boundaries.</p>
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				<p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02901: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Geographic location for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetting, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetting, subsampled, and summary products.</p>
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2.002		Request Landsat 7 spatial subsets.	The Landsat 7 spatial subsets should be successfully ordered.	<p><b>IMS-0705#B:</b></p> <p>The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval identified by: (a.) WRS (b.) Geographic Location (x, y, z) spatial with rectangular boundaries (c.) Spectral Band, (d.) Time.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and summary products.</p> <p><b>IMS-0690#B</b></p> <p>The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-10470: The WKBCH CI shall provide users the capability to display browse information in vector graphic format.</p> <p>S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.</p> <p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p>
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				<p><b>IMS-0580#B</b></p> <p>The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.</p> <p>S-CLS-10060: The WKBCH CI shall support a minimum bounding rectangle criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10070: The WKBCH CI shall support point-and-radius criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10080: The WKBCH CI shall support polygonal coordinate criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10090: The WKBCH CI shall support query of geographic Metadata by geographic name by text input.</p> <p>S-CLS-10300: The WKBCH CI shall provide visual overlays to aid in the selection of spatial data and to enhance the display of geographic metadata.</p> <p>S-CLS-10310: The WKBCH CI shall provide users the capability of positioning the cursor by entering an image X,Y coordinate.</p> <p>S-CLS-10320: The WKBCH CI shall provide users the option to display Latitude/Longitude pairs as symbols, displayed in their proper geolocation on all visualizations produced by the WKBCH CI.</p> <p>S-CLS-10350: The WKBCH CI shall provide users the option to display a series of Latitude/Longitude pairs (i.e., a vector) as lines, displayed in their proper geolocation on top of all visualizations produced by the WKBCH CI.</p> <p>S-CLS-10460: The WKBCH CI shall provide users Lat/Long lists for the production of built-in vector overlays as part of the application.</p>
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				<p>S-CLS-13570: The WKBCH CI shall provide the user the capability to indicate a spatial search criterion by drawing a polygon on a displayed map overlay.</p> <p>S-CLS-13700: Overlays provided for display to users shall be continuous over the entire display area, regardless of any gaps in the science data, for data following HDF-EOS geolocation conventions.</p> <p>S-CLS-13710: The WKBCH CI shall provide users the capability to display on a coverage map the geographic coverage of Data Granules.</p> <p>S-CLS-13720: Users shall be able to select Data Granules displayed on a coverage map for delivery.</p> <p>S-CLS-13970: The WKBCH CI shall provide users the capability to display the Workbench selection map in either a flat equatorial projection, or north or south polar projections.</p> <p>S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.</p> <p>S-CLS-15890: The WKBCH CI map displays shall provide the following types of geographic data sets for background reference: land/oceans, major lakes, major rivers, mountain ranges, volcanoes, major highways and railroads, urban and built-up areas, and political boundaries.</p>
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				<p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02904: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on WRS for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ol style="list-style-type: none"> <li>Format conversion of EOS data</li> <li>Subsetting</li> <li>Compression (lossy, lossless)</li> <li>Data transformation</li> <li>Subsampling</li> </ol> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetting, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetting, subsampled, and summary products.</p>
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2.003		For the mission and instrument being investigated, search for and order <b>spatial subsets</b> that have been <b>processed ad hoc</b> within a granule.	The spatial subsets should be successfully ordered.	<p><b>IMS-0720#B:</b></p> <p>The IMS shall provide the capability to request data products which are processed ad hoc in response to user requests for subsetting, subsampling, or averaging within a granule based on defined criteria to include: (a.) Geographical location, (x, y, z, spatial with rectangular boundaries) (b) Spectral band, (c) Time, (d) WRS.</p> <p>S-CLS-11220: The WKBCH CI shall provide the capability for users to issue Product Requests for the ad-hoc processing of subsetted, subsampled, and summary products based on geographical location (x, y, z - spatial with rectangular boundaries).</p> <p><b>DADS0740#B</b> (includes IMS-0720#B CIs)</p> <p>Each DADS shall provide the capability to <b>subset</b>, subsample, or average data within a granule based on defined criteria to include:</p> <ol style="list-style-type: none"> <li><b>Geographic location</b> (x, y, z) (spatial with rectangular boundaries)</li> <li>Spectral band</li> <li>Time</li> <li>WRS</li> </ol> <p><b>IMS-0690#B</b></p> <p>The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-10470: The WKBCH CI shall provide users the capability to display browse information in vector graphic format.</p> <p>S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.</p> <p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p>
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				<p><b>IMS-0580#B</b></p> <p>The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.</p> <p>S-CLS-10060: The WKBCH CI shall support a minimum bounding rectangle criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10070: The WKBCH CI shall support point-and-radius criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10080: The WKBCH CI shall support polygonal coordinate criteria for query of geographic Metadata by text and graphical input.</p> <p>S-CLS-10090: The WKBCH CI shall support query of geographic Metadata by geographic name by text input.</p> <p>S-CLS-10300: The WKBCH CI shall provide visual overlays to aid in the selection of spatial data and to enhance the display of geographic metadata.</p> <p>S-CLS-10310: The WKBCH CI shall provide users the capability of positioning the cursor by entering an image X,Y coordinate.</p> <p>S-CLS-10320: The WKBCH CI shall provide users the option to display Latitude/Longitude pairs as symbols, displayed in their proper geolocation on all visualizations produced by the WKBCH CI.</p> <p>S-CLS-10350: The WKBCH CI shall provide users the option to display a series of Latitude/Longitude pairs (i.e., a vector) as lines, displayed in their proper geolocation on top of all visualizations produced by the WKBCH CI.</p>
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				<p>S-CLS-10460: The WKBCH CI shall provide users Lat/Long lists for the production of built-in vector overlays as part of the application.</p> <p>S-CLS-13570: The WKBCH CI shall provide the user the capability to indicate a spatial search criterion by drawing a polygon on a displayed map overlay.</p> <p>S-CLS-13700: Overlays provided for display to users shall be continuous over the entire display area, regardless of any gaps in the science data, for data following HDF-EOS geolocation conventions.</p> <p>S-CLS-13710: The WKBCH CI shall provide users the capability to display on a coverage map the geographic coverage of Data Granules.</p> <p>S-CLS-13720: Users shall be able to select Data Granules displayed on a coverage map for delivery.</p> <p>S-CLS-13970: The WKBCH CI shall provide users the capability to display the Workbench selection map in either a flat equatorial projection, or north or south polar projections.</p> <p>S-CLS-13990: The WKBCH CI shall provide users the capability to view resulting selection area on a map when a lat/lon selection is typed in for a search.</p> <p>S-CLS-15890: The WKBCH CI map displays shall provide the following types of geographic data sets for background reference: land/oceans, major lakes, major rivers, mountain ranges, volcanoes, major highways and railroads, urban and built-up areas, and political boundaries.</p>
				<p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02901: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Geographic location for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005. of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ol style="list-style-type: none"> <li>Format conversion of EOS data</li> <li>Subsetting</li> <li>Compression (lossy, lossless)</li> <li>Data transformation</li> <li>Subsampling</li> </ol>

				<p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and summary products.</p>
2.004		For the mission and instrument being investigated, request an estimate of how long it will take before the spatial subsets that were ordered are available.	The time estimates should be received.	<p><b>IMS-0730#B:</b></p> <p>The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before subsetted, subsampled, or summary products are ready for visualization.</p> <p><b>DADS0930#B:</b></p> <p>Each DADS shall provide the IMS an estimate of the staging delay before subsetted, subsampled, or summary data sets are available.</p>

Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log off the IMS user interface.		



## V2.0-SFQ-06.005 Spectral Subsetting

This test verifies that the user is able to request and receive spectral subsets data via the IMS. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.005:

IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B	IMS-0770#B
DADS0590#B	DADS-475#B	DADS2470#B		

### Test Procedures:

#### Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log on to the IMS user interface.	A list of available services is displayed	

#### Test Execution:

Step	Station	Action	Expected Results	Comments
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2.001		For the mission and instrument being investigated, search for and order <b>spectral subsets</b> which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.	The <b>spectral subsets</b> should be successfully obtained.	<p><b>IMS-0700#B:</b> The IMS shall provide the capability for users to request <b>subsetting</b>, subsampled, and summary data products which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request <b>subsetting</b>, subsampled, and summary products.</p> <p><b>IMS-0770#B:</b> The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.</p> <p>S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.</p> <p>S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.</p> <p><b>IMS-0680#B:</b> (same CIs as IMS-0700#B) The IMS shall provide data order capabilities integrated with metadata search capabilities.</p> <p><b>IMS-0690#B</b> The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-DSS-02902: The SDSRV CI shall provide the capability to <b>subset</b>, subsample, or average data within a granule based on <b>Spectral</b> band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p>
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				<p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for <b>subsetting</b>, and subsampling data products ordered via the IMS.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. <b>Subsetting</b></li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and <b>subsetted</b>, subsampled, or summary data products to the requestor.</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with <b>static subsetted</b>, subsampled, and summary products.</p>
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2.002		Request <b>Landsat 7 spectral subsets</b> .	The <b>Landsat 7 spectral subsets</b> should be successfully ordered.	<p><b>IMS-0705#B:</b></p> <p>The IMS shall provide the capability to request a <b>subset (i.e. scene) of a Landsat 7 subinterval</b> identified by: (a.) WRS (b.) Geographic Location (x, y, z) spatial with rectangular boundaries (c.) Spectral Band, (d.) Time.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request <b>subsetting</b>, subsampled, and summary products.</p> <p><b>IMS-0690#B</b></p> <p>The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02904: The SDSRV CI shall provide the capability to <b>subset</b>, subsample, or average data within a granule <b>based on WRS</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p>
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				<p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. <b>Subsetting</b></li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and <b>subsetting</b>, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with <b>static subsetting</b>, subsampled, and summary products.</p>
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2.003		For the mission and instrument being investigated, search for and order <b>spectral subsets</b> that have been <b>processed ad hoc</b> within a granule.	The <b>spectral subsets</b> should be successfully ordered.	<p><b>IMS-0720#B:</b></p> <p>The IMS shall provide the capability to request data products which are processed ad hoc in response to user requests for <b>subsetting</b>, subsampling, or averaging within a granule based on defined criteria to include: (a.) Geographical location, (x, y, z, spatial with rectangular boundaries) (b) Spectral band, (c) Time, (d) WRS.</p> <p>S-CLS-11230: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc</b> processing of <b>subsetting</b>, subsampled, and summary products based on <b>spectral band</b>.</p> <p><b>DADS0740#B</b> (includes IMS-0720#B CIs)</p> <p>Each DADS shall provide the capability to <b>subset</b>, subsample, or average data within a granule based on defined criteria to include:</p> <ul style="list-style-type: none"> <li>a. Geographic location (x, y, z) (spatial with rectangular boundaries)</li> <li>b. <b>Spectral band</b></li> <li>c. Time</li> <li>d. WRS</li> </ul> <p><b>IMS-0690#B</b></p> <p>The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-10290: The WKBCH CI shall provide users the capability to browse data in ECS supported visualization formats in a window during the data selection and acquisition process.</p> <p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p>
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				<p><b>DADS0590#B</b> (contains the DADS0590#B CIs) Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02902: The SDSRV CI shall provide the capability to <b>subset</b>, subsample, or average data within a granule based on <b>Spectral</b> band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p><b>DADS2470#B:</b> Each DADS shall transfer Standard Products and subsetting, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetting, subsampled, and summary products.</p>
2.004		For the mission and instrument being investigated, request an estimate of how long it will take before the spectral subsets that were ordered are available.	The time estimates should be received.	<p><b>IMS-0730#B:</b> The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before subsetting, subsampled, or summary products are ready for visualization.</p> <p><b>DADS0930#B:</b> Each DADS shall provide the IMS an estimate of the staging delay before subsetting, subsampled, or summary data sets are available.</p>

Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Logo off the IMS user interface.		

## V2.0-SFQ-06.006      Subsampling

Subsampling consists of extracting multi-dimensional rectangular arrays of non-consecutive pixels from a single data granule. The size of a pixel array is dependent on the starting pixel location, the number of pixels and the spacing between the extracted pixels. This test verifies that the user is able to correctly browse, request and receive subsampled data via the IMS user interface. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.006:

IMS-0575#B      IMS-0680#B      IMS-0690#B      IMS-0700#B      IMS-0770#B  
DADS0590#B      DADS1475#B      DADS]2470#B

### Test Procedures:

Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log on to the IMS user interface.	A list of available services is displayed	

Test Execution:

Step	Station	Action	Expected Results	Comments
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2.001		<p>For the mission and instrument being investigated, search for and order <b>subsamples</b> which have been processed at the PGS during the <b>routine production processing</b> and archived at the DADS, whenever associated inventory information is displayed.</p>	<p>The <b>subsamples</b> should be successfully obtained.</p>	<p><b>IMS-0700#B:</b>  The IMS shall provide the capability for users to request subsetted, <b>subsampled</b>, and summary data products which have been processed at the PGS during the <b>routine production processing</b> and archived at the DADS, whenever associated inventory information is displayed.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, <b>subsampled</b>, and summary products.</p> <p><b>IMS-0770#B:</b>  The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.</p> <p>S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.</p> <p>S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.</p> <p><b>IMS-0680#B:</b> (same CIs as IMS-0700#B)  The IMS shall provide data order capabilities integrated with metadata search capabilities.</p> <p><b>IMS-0690#B</b>  The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-DSS-02901: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a <b>granule based on Geographic location</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p>
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				<p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and <b>subsampling</b> data products ordered via the IMS.</p> <p>S-DSS-02902: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a granule <b>based on Spectral</b> band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p>S-DSS-02903: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a granule <b>based on Time</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ol style="list-style-type: none"> <li>Format conversion of EOS data</li> <li>Subsetting</li> <li>Compression (lossy, lossless)</li> <li>Data transformation</li> <li><b>Subsampling</b></li> </ol> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetting, <b>subsampling</b>, or summary data products to the requestor.</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with <b>static</b> subsetting, <b>subsampling</b>, and summary products.</p>
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2.002		Request <b>Landsat 7 subsamples.</b>	The <b>Landsat 7 subsamples</b> should be successfully ordered.	<p><b>IMS-0705#B:</b> The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval identified by: (a.) <b>WRS</b> (b.) Geographic Location (x, y, z) spatial with rectangular boundaries (c.) Spectral Band, (d.) Time.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, <b>subsampled</b>, and summary products.</p> <p><b>IMS-0690#B</b> The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p><b>IMS-0575#B:</b> The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b> Each DADS shall support the capability for subsetting, and <b>subsampling</b> data products ordered via the IMS.</p> <p>S-DSS-02904: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a granule <b>based on WRS</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p>
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				<p><b>DADS1475#B</b></p> <p>Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. <b>Subsampling</b></li> </ul> <p>S-DSS-02904: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a granule <b>based on WRS</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetting, <b>subsampled</b>, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with <b>static</b> subsetting, <b>subsampled</b>, and summary products.</p>
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2.003		For the mission and instrument being investigated, search for and order <b>subsamples</b> that have been <b>processed ad hoc</b> within a granule.	The <b>subsamples</b> should be successfully ordered.	<p><b>IMS-0720#B:</b></p> <p>The IMS shall provide the capability to request data products which are <b>processed ad hoc</b> in response to user requests for subsetting, <b>subsampling</b>, or averaging within a granule based on defined criteria to include: (a.) <b>Geographical location</b>, (x, y, z, spatial with rectangular boundaries) (b) <b>Spectral band</b>, (c) <b>Time</b>, (d) WRS.</p> <p>S-CLS-11220: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetting, subsampled, and summary products based on <b>geographical location</b> (x, y, z - spatial with rectangular boundaries).</p> <p>S-CLS-11230: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetting, <b>subsampling</b>, and summary products based on spectral band.</p> <p>S-CLS-11240: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetting, <b>subsampling</b>, and summary products based on time.</p> <p><b>DADS0740#B</b> (includes IMS-0720#B CIs)</p> <p>Each DADS shall provide the capability to subset, <b>subsample</b>, or average data within a granule based on defined criteria to include:</p> <ol style="list-style-type: none"> <li><b>Geographic location</b> (x, y, z) (spatial with rectangular boundaries)</li> <li><b>Spectral band</b></li> <li><b>Time</b></li> <li>WRS</li> </ol> <p><b>IMS-0690#B</b></p> <p>The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.</p> <p>S-CLS-10290: The WKBCH CI shall provide users the capability to browse data in ECS supported visualization formats in a window during the data selection and acquisition process.</p>
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				<p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and <b>subsampling</b> data products ordered via the IMS.</p> <p>S-DSS-02901: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a granule <b>based on Geographic location</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p>S-DSS-02902: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a granule <b>based on Spectral band</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p>S-DSS-02903: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a granule <b>based on Time</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ol style="list-style-type: none"> <li>Format conversion of EOS data</li> <li>Subsetting</li> <li>Compression (lossy, lossless)</li> <li>Data transformation</li> <li><b>Subsampling</b></li> </ol> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetting, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetting, subsampled, and summary products.</p>
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2.004		For the mission and instrument being investigated, request an estimate of how long it will take before the <b>subsamples</b> that were ordered are available.	The time estimates should be received.	<p><b>IMS-0730#B:</b></p> <p>The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before subsetted, <b>subsampled</b>, or summary products are ready for visualization.</p> <p><b>DADS0930#B:</b></p> <p>Each DADS shall provide the IMS an estimate of the staging delay before subsetted, <b>subsampled</b>, or summary data sets are available.</p>
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Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log off the IMS user interface		

## **V2.0-SFQ-06.007      Summary Products**

This test verifies that the user is able to correctly browse, request and receive data summary products via the IMS user interface. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.007:

IMS-0575#B	IMS-0680#B	IMS-0690#B	IMS-0700#B
IMS-0770#B	DADS0590#B	DADS1475#B	DADS2470#B

### **Test Procedures:**

Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log on to the IMS user interface.	A list of available services is displayed	

Test Execution:

Step	Station	Action	Expected Results	Comments
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2.001		For the mission and instrument being investigated, search for and order <b>summary products</b> which have been processed at the PGS during the <b>routine production processing</b> and archived at the DADS, whenever associated inventory information is displayed.	The <b>summary products</b> should be successfully obtained.	<p><b>IMS-0700#B:</b> The IMS shall provide the capability for users to request subsetted, subsampled, and <b>summary data products</b> which have been processed at the PGS during the <b>routine production processing</b> and archived at the DADS, whenever associated inventory information is displayed.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and <b>summary products</b>.</p> <p><b>IMS-0770#B:</b> The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum.</p> <p>S-CLS-10220: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory core metadata attributes.</p> <p>S-CLS-10225: The WKBCH CI shall allow users to formulate a Product Request based on the results of searching the inventory product specific metadata attributes.</p> <p><b>IMS-0680#B:</b> (same CIs as IMS-0700#B) The IMS shall provide data order capabilities integrated with metadata search capabilities.</p> <p><b>IMS-0690#B</b> The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, <b>summary data</b>) to facilitate the data selection and ordering process.</p> <p><b>IMS-0575#B:</b> The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b> Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p>
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				<p>S-DSS-02901: The SDSRV CI shall provide the capability to subset, subsample, or <b>average data</b> within a granule based on <b>Geographic location</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p>S-DSS-02902: The SDSRV CI shall provide the capability to subset, subsample, or <b>average data</b> within a granule based on <b>Spectral</b> band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p>S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or <b>average data</b> within a granule based on <b>Time</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains DADS0590#B CIs)  Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p><b>DADS2470#B:</b>  Each DADS shall transfer Standard Products and subsetting, subsampled, or <b>summary data</b> products to the requestor.</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with <b>static</b> subsetting, subsampled, and <b>summary products</b>.</p>
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2.002		Request <b>Landsat 7 summary products.</b>	The <b>Landsat 7 summary products</b> should be successfully ordered.	<p><b>IMS-0705#B:</b></p> <p>The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval identified by: (a.) WRS (b.) Geographic Location (x, y, z) spatial with rectangular boundaries (c.) Spectral Band, (d.) Time.</p> <p>S-CLS-10240: The WKBCH CI shall provide the capability for users to request subsetted, subsampled, and <b>summary products</b>.</p> <p><b>IMS-0690#B</b></p> <p>The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, <b>summary data</b>) to facilitate the data selection and ordering process.</p> <p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.</p> <p>S-DSS-02904: The SDSRV CI shall provide the capability to subset, subsample, or <b>average data</b> within a granule <b>based on WRS</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p>
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				<p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetting, subsampled, or <b>summary data</b> products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with <b>static</b> subsetting, <b>subsampled</b>, and summary products.</p>
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2.003		For the mission and instrument being investigated, search for and order <b>summary products</b> that have been <b>processed ad hoc</b> within a granule.	The <b>summary products</b> should be successfully ordered.	<p><b>IMS-0720#B:</b></p> <p>The IMS shall provide the capability to request data products which are <b>processed ad hoc</b> in response to user requests for subsetting, subsampling, or <b>averaging</b> within a granule based on defined criteria to include:</p> <p>(a.) <b>Geographical location</b>, (x, y, z, spatial with rectangular boundaries) (b) <b>Spectral band</b>, (c) <b>Time</b>, (d) WRS.</p> <p>S-CLS-11220: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetting, subsampled, and <b>summary products</b> based on <b>geographical location</b> (x, y, z - spatial with rectangular boundaries).</p> <p>S-CLS-11230: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetting, subsampled, and <b>summary products</b> based on spectral band.</p> <p>S-CLS-11240: The WKBCH CI shall provide the capability for users to issue Product Requests for the <b>ad-hoc processing</b> of subsetting, subsampled, and <b>summary products</b> based on time.</p> <p><b>DADS0740#B</b> (includes IMS-0720#B CIs)</p> <p>Each DADS shall provide the capability to subset, subsample, or <b>average data</b> within a granule based on defined criteria to include:</p> <p>a. <b>Geographic location</b> (x, y, z) (spatial with rectangular boundaries)</p> <p>b. <b>Spectral band</b></p> <p>c. <b>Time</b></p> <p>d. WRS</p> <p><b>IMS-0690#B</b></p> <p>The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, <b>summary data</b>) to facilitate the data selection and ordering process.</p> <p>S-CLS-10290: The WKBCH CI shall provide users the capability to browse data in ECS supported visualization formats in a window during the data selection and acquisition process.</p>
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				<p><b>IMS-0575#B:</b></p> <p>The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attributes(s) of metadata.</p> <p>S-CLS-10190: The WKBCH CI shall provide the capability for users to compose searches across multiple data sets for coincident occurrences of data in space, time, or any other searchable core Metadata attribute(s).</p> <p><b>DADS0590#B</b></p> <p>Each DADS shall support the capability for subsetting, and <b>subsampling</b> data products ordered via the IMS.</p> <p>S-DSS-02901: The SDSRV CI shall provide the capability to subset, <b>subsample</b>, or average data within a granule <b>based on Geographic location</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p>S-DSS-02902: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule <b>based on Spectral band</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p>S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or <b>average data</b> within a granule <b>based on Time</b> for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.</p> <p><b>DADS1475#B</b> (contains the DADS0590#B CIs)</p> <p>Each DADS shall provide tools to the users to perform:</p> <ol style="list-style-type: none"> <li>Format conversion of EOS data</li> <li>Subsetting</li> <li>Compression (lossy, lossless)</li> <li>Data transformation</li> <li>Subsampling</li> </ol> <p><b>DADS2470#B:</b></p> <p>Each DADS shall transfer Standard Products and subsetted, subsampled, or summary data products to the requestor</p> <p>S-DSS-04390: Standard Product related Metadata at the Data Server shall include Metadata associated with static subsetted, subsampled, and <b>summary products</b>.</p>
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2.004		For the mission and instrument being investigated, request an estimate of how long it will take before the <b>summary products</b> that were ordered are available.	The time estimates should be received.	<p><b>IMS-0730#B:</b></p> <p>The IMS shall, using information supplied by the DADS, Provide the user an estimate of how long it will take before subsetting, subsampled, or <b>summary products</b> are ready for visualization.</p> <p><b>DADS0930#B:</b></p> <p>Each DADS shall provide the IMS an estimate of the staging delay before subsetting, subsampled, or <b>summary data sets</b> are available.</p>
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Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log off the IMS user interface		

## V2.0-SFQ-06.008 Data Formatting and Transformation

The objective of this test is to verify that data can be requested and obtained with formats and transformations allowed by IMS on-line information. Tests should be performed from PCs and UNIX-type workstations using both WWW browsers and the ECS client software.

Requirements to be Verified in V2.0-SFQ-06.008:

DADS1475#B

### Test Procedures:

#### Test Set-Up:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log on to the IMS user interface.		

2.001		For the mission and instrument being investigated, use tools provided by each DADS to request (a.) reformatted (b.) compressed and (c.) transformed data.	The reformatted, compressed, and transformed data products should be successfully obtained.	<b>DADS1475#B</b> Each DADS shall provide tools to the users to perform: a. Format conversion of EOS data b. Subsetting c. Compression (lossy, lossless) d. Data transformation e. Subsampling  S-DSS-02901: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Geographic location for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.  S-DSS-02902: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Spectral band for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.  S-DSS-02903: The SDSRV CI shall provide the capability to subset, subsample, or average data within a granule based on Time for products specified in Appendix F - Data Type Matrix, of the current version of 304-CD-005.
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#### Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log off the IMS user interface.		





**V2.0-SFQ-06.009     IMS Toolkit**

The objective of this test is to verify that data can be manipulated, as required, by the IMS Toolkit.

Requirements to be Verified in V2.0-SFQ-06.009:

IMS-1490#B	IMS-1500#B	IMS-1510#B	IMS-1520#B	IMS-1530#B
IMS-1540#B	IMS-1550#B	IMS-1570#B	IMS-1590#B	

**Test Procedures:****Test Set-Up:**

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log on to the IMS user interface.		

**Test Execution:**

Step	Station	Action	Expected Results	Comments
2.001		For the mission and instrument being investigated, construct requests for IMS services and forward the requests to the IMS server to obtain results.	This step should verify that the requested services are received at the IMS server and that the results are returned.	<b>IMS-1490#B</b> The IMS toolkit software shall provide users, including those working from ICCs and ISTs, with the capability to locally construct the requests for IMS services, forward the requests to the IMS server, and obtain request results.  S-CLS-10710: The WKBCH CI shall provide the registered user the capability to obtain ECS data and services.
2.002		For the mission and instrument being investigated, prepare directory, inventory, and guide metadata updates for the IMS.	This step should verify that the directory, inventory, and guide metadata updates for the IMS are accomplished.	<b>IMS-1500#B</b> The IMS toolkit software shall provide the tools to support user preparation or automated generation of metadata, for example, directory, inventory, and guide (documentation/reference material) entries.  S-CLS-11295: The WKBCH CI shall provide users the capability to create and submit Advertisements.  S-IOS-00230: The ADSRV CI shall provide the capability to add, delete, or modify individual Advertisements.

2.003		For the mission and instrument being investigated, execute the IMS toolkit capabilities from an ECS supported workstation.	This step should verify that the IMS toolkit capabilities are successfully executed from an ECS supported workstation.	<p><b>IMS-1510#B</b> The IMS data visualization toolkit capabilities shall be portable and execute on ECS supported workstations and appropriate ECS facility computers.</p> <p>S-CLS-01490: The DESKT CI executables shall run on the following hosts:</p> <ul style="list-style-type: none"> <li>a. DEC Digital Unix 4.0</li> <li>b. HP UX 10.01</li> <li>c. SGI IRIX 6.2 (64 bit)</li> <li>d. IBM RS/6000 AIX 4.1</li> </ul> <p>S-CLS-15680: The WKBCH CI executables shall run on the following hosts:</p> <ul style="list-style-type: none"> <li>a. SGI IRIX 5.3</li> <li>b. HP UX 9.05</li> <li>c. SUN Solaris 2.4</li> <li>d. IBM RS/6000 AIX 3.2.5</li> </ul> <p>S-CLS-15682: The WKBCH CI executables shall run on the following hosts:</p> <ul style="list-style-type: none"> <li>a. DEC Digital Unix 4.0</li> <li>b. HP UX 10.01</li> <li>c. SGI IRIX 6.2 (64 bit)</li> <li>d. IBM RS/6000 AIX 4.1</li> </ul>
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2.004		For the mission and instrument being investigated, use the IMS toolkit software to perform the following functions: (a.) QA/Validation of products generated by the PGS, (b.) Algorithm development, (c.) Calibration functions, parameter verification, and anomaly detection, (d.) View subsetting, subsampling, and summarized data whenever associated inventory information is displayed.	This step should verify that the following functions can be performed with the IMS toolkit: (a.) QA/Validation of products generated by the PGS, (b.) Algorithm development, (c.) Calibration functions, parameter verification, and anomaly detection, (d.) View subsetting, subsampling, and summarized data whenever associated inventory information is displayed.	<p><b>IMS-1520#B</b></p> <p>The IMS toolkit software shall provide data visualization tools to assist the investigators to perform the following functions, at a minimum: (a.) QA/Validation of products generated by the PGS, (b.) Algorithm development, (c.) Calibration functions, parameter verification, and anomaly detection, (d.) View subsetting, subsampling, and summarized data whenever associated inventory information is displayed.</p> <p>S-CLS-10570: The WKBCH CI shall produce visualizations of images needed for QA, validation, Algorithm development, calibration functions, parameter verification and anomaly detection.</p> <p>S-CLS-10580: The WKBCH CI shall produce visualizations of multi-dimensional arrays needed for QA, Validation, Algorithm development, calibration functions, parameter verification and anomaly detection.</p> <p>S-CLS-10590: The WKBCH CI shall produce visualizations of tables of numbers needed for QA, Validation, Algorithm development, calibration functions, parameter verification and anomaly detection.</p> <p>S-CLS-13980: The WKBCH CI shall provide a legend describing the display of a Data Product, in each window in which a Data Product is displayed.</p>
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2.005		For the mission and instrument being investigated, use the IMS toolkit to display data in raster and vector formats and animated products.	This step should verify that the IMS toolkit can display data in raster and vector formats and animated products.	<p><b>IMS-1530#B</b> The IMS data visualization toolkit shall provide the capability to visualize data in raster and vector formats and to visualize animated products.</p> <p>S-CLS-10320: The WKBCH CI shall provide users the option to display Latitude/Longitude pairs as symbols, displayed in their proper geolocation on all visualizations produced by the WKBCH CI.</p> <p>S-CLS-10330: The WKBCH CI shall provide users the capability of displaying 8-bit raster images.</p> <p>S-CLS-10340: The WKBCH CI shall provide users the capability of displaying 24-bit raster images.</p> <p>S-CLS-10350: The WKBCH CI shall provide users the option to display a series of Latitude/Longitude pairs (i.e., a vector) as lines, displayed in their proper geolocation on top of all visualizations produced by the WKBCH CI.</p> <p>S-CLS-10360: The WKBCH CI shall provide users the capability to display browse information in table format.</p> <p>S-CLS-10370: The WKBCH CI shall provide users the capability to display browse information in text format.</p> <p>S-CLS-10380: The WKBCH CI shall provide users the capability to produce an animation loop.</p> <p>S-CLS-10400: The WKBCH CI shall provide users the option to display a series of visualizations as an animation.</p> <p>S-CLS-10460: The WKBCH CI shall provide users Lat/Long lists for the production of built-in vector overlays as part of the application.</p> <p>S-CLS-10470: The WKBCH CI shall provide users the capability to display browse information in vector graphic format.</p> <p>S-CLS-13620: The WKBCH CI shall provide the capability to visualize Data Products as continuous forward animation.</p>
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2.006		For the mission and instrument being investigated, use the IMS toolkit to generate: (a.) Two-dimensional plots (x-y plots; scatter plots, profiles, histograms), (b.) Three dimensional plots, (c.) Contour plots, (d.) Three-dimensional surface diagrams.	This step should verify that the IMS toolkit can be used to generate: (a.) Two-dimensional plots (x-y plots; scatter plots, profiles, histograms), (b.) Three dimensional plots, (c.) Contour plots, (d.) Three-dimensional surface diagrams.	<p>S-CLS-13630: The WKBCH CI shall provide the capability to visualize Data Products as single step forward animation.</p> <p>S-CLS-13640: The WKBCH CI shall provide the capability to visualize Data Products as single step backward animation.</p> <p>S-CLS-13650: The WKBCH CI shall provide the capability to visualize Data Products as oscillating animation (i.e., continuous forward then continuous backward, alternating throughout the loop until user-directed termination).</p> <p>S-CLS-18060: The WKBCH CI shall provide users the capability to display an animation.</p> <p>S-CLS-10460: The WKBCH CI shall provide users Lat/Long lists for the production of built-in vector overlays as part of the application.</p> <p>S-CLS-10470: The WKBCH CI shall provide users the capability to display browse information in vector graphic format.</p> <p>S-CLS-13620: The WKBCH CI shall provide the capability to visualize Data Products as continuous forward animation.</p> <p>S-CLS-13630: The WKBCH CI shall provide the capability to visualize Data Products as single step forward animation.</p> <p>S-CLS-13640: The WKBCH CI shall provide the capability to visualize Data Products as single step backward animation.</p> <p>S-CLS-13650: The WKBCH CI shall provide the capability to visualize Data Products as oscillating animation (i.e., continuous forward then continuous backward, alternating throughout the loop until user-directed termination).</p> <p>S-CLS-18060: The WKBCH CI shall provide users the capability to display an animation.</p> <p><b>IMS-1540#B</b> The IMS toolkit shall provide the capability to generate, at a minimum: (a.) Two-dimensional plots (x-y plots; scatter plots, profiles, histograms), (b.) Three dimensional plots, (c.) Contour plots, (d.) Three-dimensional surface diagrams.</p>
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				<p>S-CLS-10410: The WKBCH CI shall provide the capability of displaying ECS supported visualization data as a two-dimensional color scatter plot.</p> <p>S-CLS-10430: The WKBCH CI shall provide the capability of displaying two-dimensional data arrays as pseudocolor images.</p> <p>S-CLS-10480: The WKBCH CI shall provide the capability of displaying ECS supported visualization data as a series of lineplots.</p> <p>S-CLS-10490: The WKBCH CI shall provide the capability of displaying a horizontal or vertical profile through a pseudocolor image.</p> <p>S-CLS-10500: The WKBCH CI shall provide the capability of displaying multi-dimensional arrays of data as a series of two-dimensional pseudocolor images.</p>
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2.007		For the mission and instrument being investigated, use the IMS toolkit to manipulate images (e.g. pan, zoom, color, contrast).	This step should verify that the IMS toolkit provides capabilities for manipulating images (e.g. pan, zoom, color, contrast).	<p><b>IMS-1550#B</b> The IMS toolkit data visualization tools shall provide capabilities for image manipulation (e.g., pan, zoom, color, contrast).</p> <p>S-CLS-10420: The WKBCH CI shall provide the capability of selecting different color palettes for the pseudocolor visualizations.</p> <p>S-CLS-10440: The WKBCH CI shall provide the capability of zooming and panning pseudocolor visualizations of data.</p> <p>S-CLS-10450: The WKBCH CI shall provide the capability of zooming and panning raster images.</p> <p>S-CLS-10510: The WKBCH CI shall provide the capability of importing color palettes.</p> <p>S-CLS-10520: The WKBCH CI shall provide the capability for modifying the color palette.</p> <p>S-CLS-10530: The WKBCH CI shall provide the capability of modifying the pseudocolor mapping by changing the data min/max values.</p> <p>S-CLS-10540: The WKBCH CI shall provide the capability of modifying the pseudocolor mapping by adaptive equalization.</p> <p>S-CLS-13660: The WKBCH CI shall provide users the capability to change the minimum/maximum values of the color tables for visualization of Data Products.</p> <p>S-CLS-13670: The WKBCH CI shall provide users the capability to modify color palettes for visualization of Data Products.</p>
2.008		For the mission and instrument being investigated, use the IMS toolkit to perform statistical analyses.	This step should verify that the IMS toolkit can be used to perform statistical analyses.	<p><b>IMS-1570#B</b> The IMS toolkit software shall provide statistical analysis capabilities.</p> <p>S-CLS-10550: The WKBCH CI shall provide users the capability of calculating summarizing statistics of multi-dimensional arrays of EOS data.</p> <p>S-CLS-10560: The WKBCH CI shall provide the capability of calculating summarizing statistics of user-selected columns from tables of values of EOS data.</p>



2.009		For the mission and instrument being investigated, use the IMS toolkit capabilities to position the cursor by: (a.) Earth coordinates, (b) Image coordinates, (c.) Instrument scan-line coordinates.	This test should verify that the cursor can be positioned by: (a.) Earth coordinates, (b) Image coordinates, (c.) Instrument scan-line coordinates.	<p><b>IMS-1590#B</b></p> <p>The IMS toolkit visualization tools shall provide capabilities for sizing and positioning the cursor by: (a.) Earth coordinates, (b) Image coordinates, (c.) Instrument scan-line coordinates.</p> <p>S-CLS-10310: The WKBCH CI shall provide users the capability of positioning the cursor by entering an image X,Y coordinate.</p> <p>S-CLS-10600: The WKBCH CI shall display the Latitude and Longitude coordinates of the cursor, when the cursor is inside an EOS Grid array.</p> <p>S-CLS-10610: The WKBCH CI shall provide users the capability of positioning the cursor by entering a Latitude/Longitude value.</p> <p>S-CLS-10615: The WKBCH CI shall provide users the capability of positioning the cursor by entering instrument scan line.</p>
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Test Termination:

Step	Station	Action	Expected Results	Comments
1.	PC @ SI&T site	Log off the IMS user interface.		

**Requirements to be Verified in V2.0-SPD-06:**

DADS-0590#B	Each DADS shall support the capability for subsetting, and subsampling data products ordered via the IMS.
DADS-0740#B	Each DADS shall provide the capability to subset, subsample, or average data within a granule based on defined criteria to include: <ul style="list-style-type: none"> <li>a. Geographic location (x, y, z) (spatial with rectangular boundaries)</li> <li>b. Spectral band</li> <li>c. Time</li> <li>d. WRS</li> </ul>
DADS0930#B	Each DADS shall provide the IMS an estimate of the staging delay before subsetting, subsampled, or summary data sets are available.
DADS0740#B	Each DADS shall provide the capability to subset, subsample, or average data within a granule based on defined criteria to include: <ul style="list-style-type: none"> <li>a. Geographic location (x, y, z) (spatial with rectangular boundaries)</li> <li>b. Spectral band</li> <li>c. Time</li> <li>d. WRS</li> </ul>
DADS0930#B	Each DADS shall provide the IMS an estimate of the staging delay before subsetting, subsampled, or summary data sets are available.
DADS1475#B	Each DADS shall provide tools to the users to perform: <ul style="list-style-type: none"> <li>a. Format conversion of EOS data</li> <li>b. Subsetting</li> <li>c. Compression (lossy, lossless)</li> <li>d. Data transformation</li> <li>e. Subsampling</li> </ul>
DADS2200#B	Each DADS shall maintain a list of data which requires some form of data manipulation such as subsetting.
DADS2470#B	Each DADS shall transfer Standard Products and subsetting, subsampled, or summary data to the requester.
IMS-0320#B	Standard Product related metadata shall contain, at a minimum: <ul style="list-style-type: none"> <li>a. Keywords and glossary from investigators</li> <li>b. Keywords, synonyms, and glossary for cross-product and cross-directory referencing</li> <li>c. Identifiers for locating products in the DADS archive by granule</li> <li>d. Documentation on algorithms, including version history, authors, written description of product, equations, and references</li> <li>e. Documentation on instrument(s) and spacecraft(s) including history of housekeeping and ancillary parameters, discipline characterization, calibration parameters, key individuals, and references</li> <li>f. Identifiers, algorithms, written descriptions, equations, authors, and references associated with static browse products and subsetting, subsampled, and summary data products</li> <li>g. Published papers, research results, significant results, and references by author and date</li> <li>h. Key organizations and personnel for all product-related DAACs, ADCs, and ODCs</li> <li>i. Granule-specific information as listed in Tables C-10 and C-11 in Appendix C</li> </ul>
IMS-0420#B	The IMS on-line guide (documentation /reference material) shall provide or, where appropriate, contain references to such information as: <ul style="list-style-type: none"> <li>a. Documentation of processing algorithms used for EOS and other Earth science data products generated by the ECS</li> <li>b. Results of science data quality assessments of EOS data</li> <li>c. Bibliography of published and unpublished literature (as available) derived from the project</li> </ul>

	<ul style="list-style-type: none"> <li>d. Cross references between differing studies of the same data</li> <li>e. Other documents relevant to quality assessment of EOS data</li> <li>f. Product specifications</li> <li>g. Instrument specifications</li> <li>h. Summaries of data sets derived from observation logs</li> <li>i. Format options available for the given data set</li> <li>j. Subsetting, subsampling, and transformation options available for the given data set</li> <li>k. Inventory search options available for the given data set</li> </ul>
IMS-0575#B	The IMS shall provide the capability to search across multiple data sets for coincident occurrences of data in space and/or time and any other attribute(s) of metadata.
IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.
IMS-0680#B	The IMS shall provide data order capabilities integrated with metadata search capabilities.
IMS-0690#B	The IMS shall provide the capability to visualize pre-order data products and metadata (e.g. coverage maps, summary data) to facilitate the data selection and ordering process.
IMS-0700#B	The IMS shall provide the capability for users to request subsetted, subsampled, and summary data products, which have been processed at the PGS during the routine production processing and archived at the DADS, whenever associated inventory information is displayed.
IMS-0705#B	<p>The IMS shall provide the capability to request a subset (i.e. scene) of a Landsat 7 subinterval identified by:</p> <ul style="list-style-type: none"> <li>a. WRS</li> <li>b. Geographic location (x,y,z) spatial with rectangular boundaries</li> <li>c. Spectral Band</li> <li>d. Time</li> </ul>
IMS-0720#B	<p>The IMS shall provide the capability to request data products which are processed ad hoc in response to user requests for subsetting, subsampling, or averaging within a granule based on defined criteria to include:</p> <ul style="list-style-type: none"> <li>a. Geographical location (x, y, z - spatial with rectangular boundaries)</li> <li>b. Spectral band</li> <li>c. Time</li> <li>d. WRS</li> </ul>
IMS-0730#B	The IMS shall, using information supplied by the DADS, provide the user an estimate of how long it will take before subsetted, subsampled, and summary data products are ready for visualization.
IMS-0770#B	The IMS shall allow users to formulate a data order based on any combination of the inventory core metadata attributes and geophysical parameters at a minimum
IMS-0920#B	The IMS shall provide the capability for users to construct and submit standing orders and one-time requests for processing of ECS data by pre-existing processes, which shall contain the following information at a minimum: (a.) Requester identification, (b.) Algorithm input requirements, (c.) Text description of need for processing, (d.) Level 0-4 data set/subset, (e.) Required time of generation, (f.) Requested priority for product processing, (g.) Resulting product type, (h.) Processing parameters.
IMS-1490#B	The IMS toolkit software shall provide users, including those working from ICCs and ISTs, with the capability to locally construct the requests for IMS services, forward the requests to the IMS server, and obtain request results.
IMS-1500#B	The IMS toolkit software shall provide the tools to support user preparation or automated generation of metadata, for example, directory, inventory, and guide (documentation/reference material) entries.
IMS-1510#B	The IMS data visualization toolkit capabilities shall be portable and execute on ECS supported workstations and appropriate ECS facility computers.
IMS-1520#B	The IMS toolkit software shall provide data visualization tools to assist the investigators to perform the following functions, at a minimum: (a.) QA/Validation of products generated by the PGS, (b.) Algorithm development, (c.) Calibration functions, parameter verification, and

	anomaly detection, (d.) View subsetting, subsampling, and summarized data whenever associated inventory information is displayed.
IMS-1530#B	The IMS data visualization toolkit shall provide the capability to visualize data in raster and vector formats and to visualize animated products.
IMS-1540#B	The IMS toolkit shall provide the capability to generate, at a minimum: (a.) Two-dimensional plots (x-y plots; scatter plots, profiles, histograms), (b.) Three dimensional plots, (c.) Contour plots, (d.) Three-dimensional surface diagrams.
IMS-1550#B	The IMS toolkit data visualization tools shall provide capabilities for image manipulation (e.g., pan, zoom, color, contrast).
IMS-1570#B	The IMS toolkit software shall provide statistical analysis capabilities.
IMS-1590#B	The IMS toolkit visualization tools shall provide capabilities for sizing and positioning the cursor by: (a.) Earth coordinates, (b) Image coordinates, (c.) Instrument scan-line coordinates.